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The Hotel Yearbook
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Tourism in a Changing Climate: Navigating the Future through a Resilience Lens

Aiming for Net Positive

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Synopsis

The Tourism Panel on Climate Change's 2022 report, "The Imperative for Advancing Climate Risk Assessment in Tourism," underscores the urgent need for the tourism industry, especially hotels, to address climate change risks. It details measures based on the Hotel Resilient Climate and Crisis Resilience Standards to enhance climate resilience. However, the implementation of these measures is often hindered by the hotel management's perception of risk and rigid organizational structures. The report emphasizes the necessity for a paradigm shift in hotel management, recognizing climate resilience as crucial for the sector's long-term sustainability and competitiveness. It highlights that the tourism industry, facing diverse challenges from climate change, must adopt a comprehensive and proactive approach for resilience and sustainability.

The Tourism Panel on Climate Change's "Tourism Climate Change Stocktake 2023" report presented at COP28 provides an in-depth analysis of the reciprocal impact between tourism and climate change, underscoring the need for more robust efforts in policy integration, emissions mitigation, and capacity building to align the tourism sector with global climate objectives. Key findings reveal that tourism growth is not aligned with climate goals, primarily due to increased air travel. Tourism policies lack integration with climate frameworks, and national policies often overlook climate change. The sector faces significant challenges in reducing emissions, with current practices not effectively curbing high-emission tourism forms. Climate change poses extensive impacts on tourism, especially in regions crucial for economic growth. Government investments in tourism infrastructure often exacerbate GHG emissions, and there is a substantial gap in climate change training and awareness within the industry. Although hotel operations have seen some improvement in GHG intensity, these are negated by increased room numbers, with emission reductions mainly from electricity decarbonization rather than reduced consumption.

The Intergovernmental Panel on Climate Change's Sixth Assessment Report highlights the disruptions in the global climate system and underscores their implications for the tourism sector. The industry is grappling with climate change impacts such as an increase in heatwaves, droughts, wildfires, and ecosystem transformations, which are reshaping investment, planning, operations, and customer demand. Despite the growing frequency of crises, many tourism destinations remain underprepared, with insufficient updates to their crisis management plans.

CLIMATE CHANGE IMPACTS ON TOURISM

Climate change impacts are interconnected, with one impact triggering or amplifying others. Severe storms, for example, increase the risk of infrastructure damage, while the loss of coral reefs can lead to coastal erosion. Climate change effects are also nonlinear, meaning small changes can lead to significant consequences, including potential "tipping points" with irreversible impacts. These challenges require businesses to adopt a holistic approach and consider various local, regional, and global climate impacts.

The following represent key climate change impacts on the tourism industry:

- *Rising Sea Levels:* Coastal tourism is severely impacted as sea-level rise erodes infrastructure, submerges beaches, and damages natural attractions, reducing quality and subsequently demand.
- *Rising Temperatures:* Increased temperatures make some locations too hot for summer tourism, affect winter sports destinations, and disrupt biodiversity and eco-tourism. Shifts in tourism demand and seasonality are expected.
- *Increased Severity and Frequency of Weather Events:* Heatwaves, wildfires, heavy precipitation, floods, and tropical cyclones are becoming more severe, particularly affecting small island developing states. These events can deter potential tourists and disrupt infrastructure. The increased frequency of such events also reduces the time available between events to recover from impacts.
- *Water Scarcity:* Climate-induced water scarcity leads to conflicts with local communities and increased operating costs for tourism. Droughts have resulted in reduced tourist arrivals in some areas.
- *Habitat Destruction:* Sea-level rise, inundation, and drought destroy habitats, reducing destination attractiveness. Coral reefs, vital for tourism, are particularly vulnerable to climate change.
- *Reduced Beach Availability:* Sea-level rise, coastal erosion, and extreme events can reduce beach size, impacting coastal tourism destinations significantly.
- *Risks to Return on Investment and Insurability:* Widespread damage and financial losses reduce the return on investment for tourism businesses. Insurers are reassessing risks, potentially making coverage less accessible, particularly for smaller businesses.
- *Increased Risk Perception:* tourists may alter their preferences, avoiding destinations that are more likely to experience drought, storms, wildfires, and extreme heat due to a heightened perception of risk.

MEASURING CLIMATE CHANGE RISK

Assessing and measuring climate change risks is crucial for hotel owners and other tourism businesses. Firstly, climate change poses significant threats to the physical infrastructure that tourism relies upon, particularly in regions prone to extreme weather events like hurricanes, floods, or wildfires. By understanding these risks, tourism stakeholders can implement necessary adaptations and reinforcements to their properties and assets. Secondly, climate change impacts can lead to operational disruptions and financial losses. For instance, a rise in sea levels or increased frequency of natural disasters can deter tourists, directly affecting the tourism demand. Thirdly, being proactive in assessing climate risks positions tourism businesses as responsible and forward-thinking. This not only enhances reputation but also aligns with increasing consumer and investor demand for environmentally conscious travel options. Moreover, tourism businesses that are prepared for climate-related challenges are likely to see reduced insurance premiums and better compliance with evolving environmental regulations. Lastly, understanding and mitigating climate risks is essential for the long-term sustainability and viability of the hotel industry, as it navigates an increasingly unpredictable environmental landscape.

CLIMATE RISK MODELING

Climate risk modeling in the tourism industry is a method for assessing the potential impacts of climate change on tourism-related assets, destinations, and operations. This approach is becoming increasingly important due to the evident and growing impact of climate change on the tourism sector, including heatwaves, drought, wildfires, and changes in landscapes and ecosystems. Climate risk modeling is increasingly vital for decision-making in the tourism sector amidst a changing climate. This approach is essential for enhancing resilience, enabling the development of climate transition and resilience strategies tailored to the hospitality industry. Utilizing advanced climate science, climate risk modeling provides specific quantification of climate risks and projects future climate scenarios.

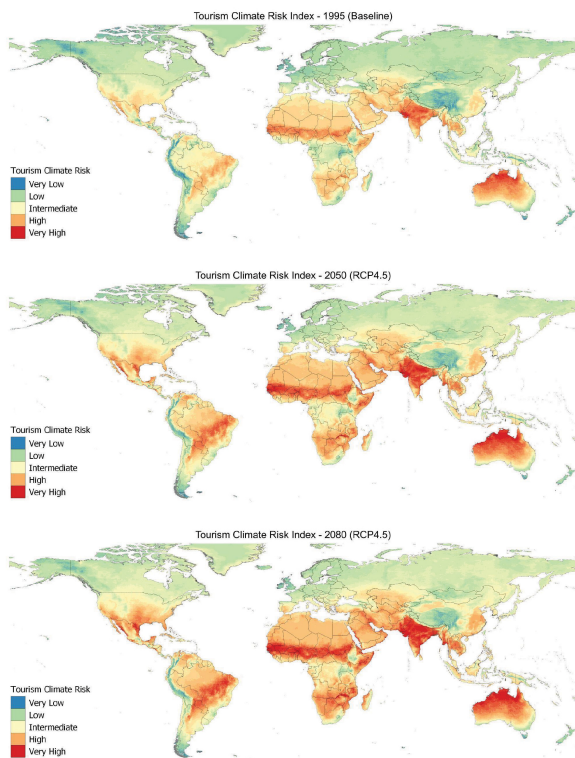
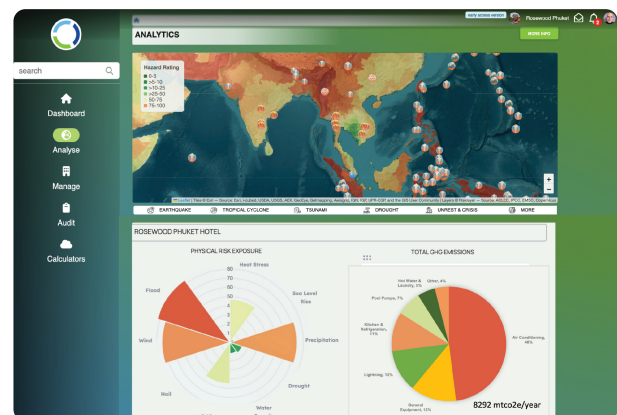


Figure 1 highlights how the global distribution of tourism's exposure to a combined 9 climate hazards varies under a moderate (RCP4.5) emissions scenario. The areas most at risk, or exposure hotspots, include south and southeastern Asia, sub-Saharan Africa, the Amazon and central South America, small island developing states in the Caribbean, and the Indian and Pacific oceans, as well as northern Australia, and the southern regions of the USA and Mexico. In contrast, the regions with the lowest exposure to these hazards are found in western and northern Europe, central Asia, and specific areas of China, Canada, and New Zealand. The high exposure in areas where tourism is a significant economic contributor or is seen as a key development strategy highlights the potential of climate change to impede tourism's role in achieving the Sustainable Development Goals (SDGs). This underscores the necessity for countries to integrate tourism considerations into their National Adaptation Plans. Source: Risklayer 2023 published in TPCC 2023

Hotel Resilient integrates climate risk analytics which can be utilized by a range of stakeholders within the tourism and hospitality industry, including hospitality companies, destination management organizations, investors, and others. This integration empowers informed climate risk assessments and decision-making within the industry, offering the following capabilities to hospitality companies:

- Personalized asset portfolio creation for collaboration across organizations.
- Identification of vulnerabilities and opportunities across diverse climate scenarios.
- Integration of climate data into decision-making processes for adaptation planning, business continuity, and climate-related financial disclosure compliance.
- Climate risk ratings for large portfolios, aiding decision-making, benchmarking, and financial impact evaluation under climate stress scenarios.

This integrated approach helps users track and quantify climate risk across their portfolio, considering acute and chronic hazards such as heat stress, precipitation, flooding, wind, drought, and wildfire. Users can assess risk across different timeframes and scenarios, with asset risk ratings from 'Very Low' to 'Extremely High'. Hotel Resilient also simplifies financial disclosure reporting in line with Task Force on Climate-related Financial Disclosures (TCFD) guidelines. Users can customize, share, and download these reports to efficiently fulfill disclosure requirements.



FROM ASSESSMENT TO ACTION

Climate change is already affecting tourism destinations and businesses, posing a significant threat to their viability and demanding that action be taken immediately to address climate risks. The Tourism Panel on Climate Change's (TPCC) 2022 report "The Imperative for Advancing Climate Risk Assessment in Tourism" highlights various measures that hotels can implement to address climate change, based on the Hotel Resilient Climate and Crisis Resilience Standards. Implementing such measures is greatly influenced, and often restricted, by a hotel owner or manager's perception of risk, as well as the hotel's organizational structure, which can be difficult to change. For many, the successful adaptation of these measures will require a shift in mindset at all levels of hotel management, acknowledging that climate resilience is essential for the long-term sustainability and competitiveness of the tourism sector.

Table 1 - Measures for Hotels to Manage Physical Climate-related Risks (source: TPCC 2022)

Climate Resilience Categories	Examples of Measures for Managing Climate-related Risks	
Site and Buildings	Site	Reassess your property's risk to hazards considering projected climate change impacts such as higher temperatures, sea-level rise, increased erosion, more intense and frequent hazard events. Plant trees, shrubs and other native plant species to protect against erosion.
	Building Structure	Monitor building structure regularly and have your buildings routinely inspected by an expert (structural engineer, architect, building inspector) to assess for signs of structural deterioration. Strengthen foundation to wall and wall to roof connections with anchor bolts to protect buildings from stronger winds.
	Building Component	Install shutters to protect windows during storm events. Improve bracing of protrusions from buildings such as parapets, chimneys, balconies and air conditioning units to prevent them from falling during seismic events and storms.
Systems	Infrastructure and Supplies	Improve protection of critical equipment (HVAC, water supply, electrical, generator, telecommunications, etc.) from hazards, such as floods, high winds and seismic events. Install water tanks to meet emergency demands during temporary water disruptions.
	Evacuation and Rescue	Re-assess evacuation plans considering projected changes in hazard impacts and scenarios, such as wildfire, heatwave, intense storms, and flooding. Review evacuation routes and assembly points to ensure they are still safe considering any updates in hazard characteristics, i.e., new areas at risk to hazard impact.
	Warning Systems	Re-assess warning processes and establish new systems for new hazards or levels of risk, such as drought, intense storm events and wildfires. Install smoke/fire alarms to become informed of fires in the building immediately, and trigger fire fighting actions, to prevent fires from spreading, especially in fire prone locations.
Management	Preparedness & Management	Update your disaster management plans to address climate informed hazard risks. Train staff and conduct exercises, ensuring to consider worst case climate impact scenarios.
	Crisis Communication	Familiarize yourself with re-assessed hazard risks and update crisis communication protocols accordingly. Carefully plan how you will inform staff and guests of new risks or new levels of risk that they may not be used to, such as wildfire, heatwaves, drought, and more severe weather events.
	Business Continuity	Review the various resources (gas, electricity, water, public transportation, communications, banking, supply chains) that the hotel owns or utilizes and assess the impact of disruptions to those resources. Re-calculate yearly contributions to the emergency reserve fund, considering potential increase in hazard damage and decrease in recovery time between events.

CONCLUSION

The tourism industry faces multifaceted challenges from climate change, affecting destinations, hotels and tourism businesses worldwide. Addressing these challenges requires a comprehensive and proactive approach to ensure the sector's long-term resilience and sustainability. Understanding the unique characteristics of hazards (heatwaves, droughts, wildfires, extreme weather events) and how they will be altered by climate change over time is key to developing detailed models for future research.

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Dr. Trevor Girard is Director of Standards and Accreditation at Hotel Resilient, a non-profit organization with the mission to establish and promote climate and disaster resilient standards and practice in the hotel industry. He is also Chief Scientific Officer at Risklayer GmbH, which offers a range of services for analyzing and managing disaster risk. Trevor is a disaster management professional with a background in architecture, project management and sustainable development. He completed his PhD in the Department of Civil Engineering, Geo and Environmental Sciences at the Karlsruhe Institute of Technology (KIT), Germany in 2018. His PhD research investigated the various components of a typical disaster communication system that influence the effectiveness of disaster communication strategies and their ability to influence response actions. Trevor is a Leadership in Energy and Environmental Design (LEED ®) Accredited Professional. He is also a certified search and rescue responder and volunteers with the German Technical Disaster Relief (THW).

Hotel Resilient — hotelresilient.org

Hotel Resilient, emerged from the Hotel Resilient Initiative under the Global Initiative for Disaster Risk Management implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) in partnership with the United Nations Office for Disaster Risk Reduction (UNDRR) and the Pacific Asia Travel Association (PATA). As a scientific benchmarking company based in Germany, the mission of Hotel Resilient is to be the definitive resource to the global hospitality industry in preparing for crises like pandemics, natural disasters and climate change by bringing together cutting-edge risk analytics and technology-based resilience solutions. We support hotels and destinations become more resilient. By doing so, Hotel Resilient enhances guest safety and business continuity, and contributes to the resilience of local communities, destinations and national economies that rely on tourism.